

Claims

- [c1] 1. A connector segment for connecting a combustor liner and a transition piece in a gas turbine, the connector segment having a substantially cylindrical shape and being of double-walled construction including inner and outer walls and a plurality of cooling channels extending axially along the segment, between said inner and outer walls, said cooling channels defined in part by radially inner and outer surfaces, wherein at least one of said radially inner and outer surfaces is formed with an array of concavities.
- [c2] 2. The connector segment of claim 1 wherein both of said inner and outer surfaces are formed with an array of concavities.
- [c3] 3. The connector segment of claim 1 and further comprising axially spaced holes in said outer wall communicating with at least some of said cooling channels.
- [c4] 4. The connector segment of claim 1 wherein said concavities are semispherical in shape.
- [c5] 5. The connector segment of claim 4 wherein said concavities are arranged in staggered rows.
- [c6] 6. The connector segment of claim 1 wherein said concavities are circular, and have a diameter D , and wherein a depth of said concavities is equal to about 0.10 to 0.50 D .
- [c7] 7. The connector segment of claim 6 wherein a center-to-center distance between adjacent concavities is equal to about 1.1–2 D .
- [c8] 8. The connector segment of claim 1 wherein a center-to-center distance between adjacent concavities is equal to about 1.1–2 D .
- [c9] 9. The connector segment of claim 1 wherein said cooling channels have an aspect ratio of from 0.2 to 1.
- [c10] 10. The connector segment of claim 1 wherein a ratio of channel height to concavity diameter is in a range of 0.25 to 5.

- [c1 1] 11. The connector segment of claim 1 including a plurality of axially spaced impingement holes in each channel.
- [c1 2] 12. A connector segment for connecting a combustor liner and a transition piece in a gas turbine, the connector segment being of double-walled construction including inner and outer walls and a plurality of cooling channels extending axially along the segment, between said inner and outer walls, said cooling channels defined in part by radially inner and outer surfaces; wherein both of said radially inner and outer surfaces are formed with an array of concavities; and further comprising axially spaced holes in said outer wall communicating said plurality of cooling channels.
- [c1 3] 13. The connector segment of claim 12 wherein said concavities are semispherical in shape.
- [c1 4] 14. The connector segment of claim 12 wherein said concavities are arranged in staggered rows.
- [c1 5] 15. The connector segment of claim 12 wherein said concavities are circular, and have a diameter D , and wherein a depth of said concavities is equal to about 0.10 to 0.50 D .
- [c1 6] 16. The connector segment of claim 12 wherein a center-to-center distance between adjacent concavities is equal to about 1.1–2 D .
- [c1 7] 17. The connector segment of claim 15 wherein a center-to-center distance between adjacent concavities is equal to about 1.1–2 D .
- [c1 8] 18. The connector segment of claim 12 wherein said cooling channels have an aspect ratio of from 0.2 to 1.
- [c1 9] 19. The connector segment of claim 12 wherein a ratio of channel height to concavity diameter is in a range of 0.25 to 5.
- [c20] 20. The connector segment of claim 15 wherein said cooling channels have an aspect ratio of from 0.2 to 1.
- [c21] 21. The connector segment of claim 20 wherein a ratio of channel height to

concavity diameter is in a range of 0.25 to 5.

- [c22] 22. The connector segment of claim 21 wherein a center-to-center distance between adjacent concavities is equal to about $1.1-2D$.